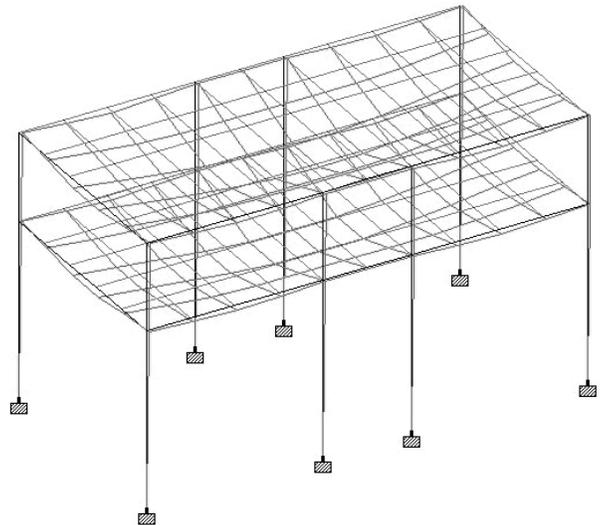
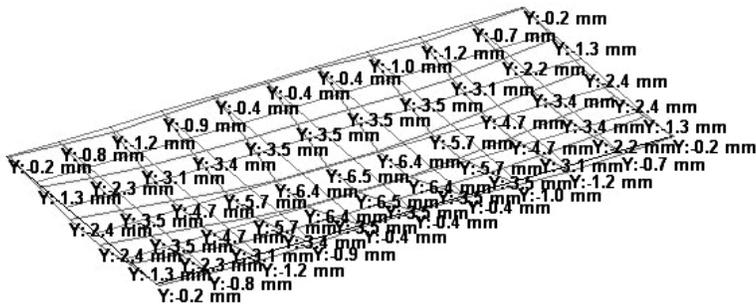
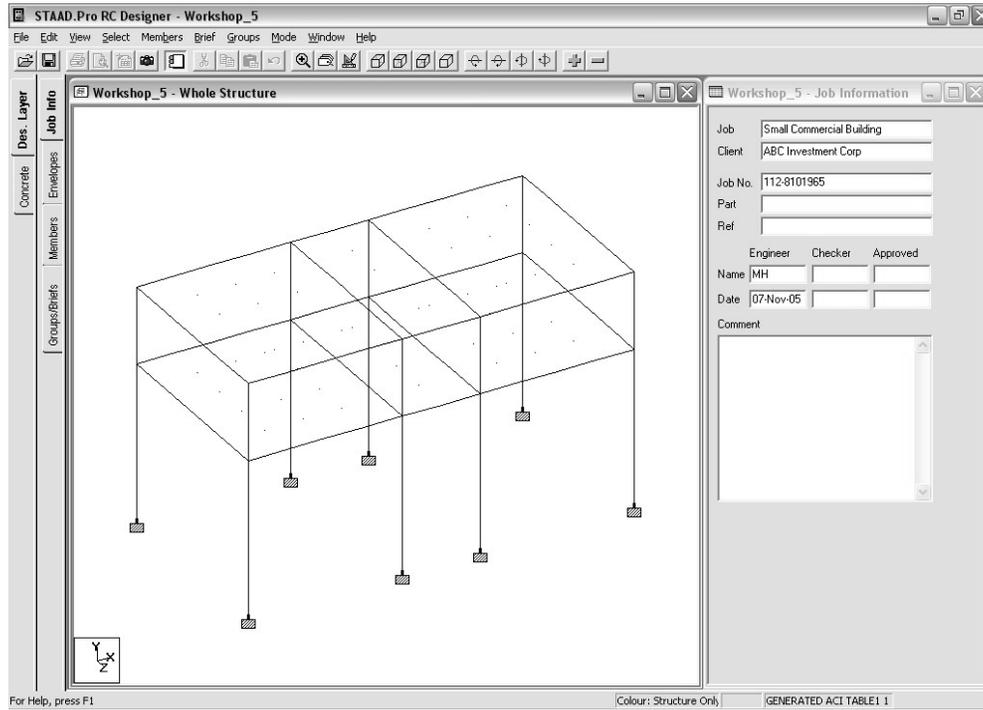


# Using STAAD Pro 2005 Tutorial (With U.S. Design Codes)



**Munir M. Hamad**

**SDC**  
PUBLICATIONS

Schroff Development Corporation

[www.schroff.com](http://www.schroff.com)  
[www.schroff-europe.com](http://www.schroff-europe.com)

# Table of Contents

---

## ***Module 1 Introduction to STAAD Pro***

History of STAAD Software.....	1-3
Method of Analysis.....	1-5
Three steps to reach your goal.....	1-6
Starting STAAD Pro.....	1-8
Creating New File.....	1-8
STAAD Pro Screen.....	1-11
Opening an Existing File.....	1-12
Closing a file.....	1-13
Existing STAAD Pro.....	1-14
Saving & Saving As.....	1-14
Module Review.....	1-15
Module Review Answers.....	1-16

## ***Module 2 Geometry***

Understanding STAAD Pro Way.....	2-3
What are Nodes, Beams, and Plates.....	2-4
How things are done in the Input file?.....	2-7
Exercise 1.....	2-9
Geometry Creation Methods.....	2-11
Method 1: Using Structure Wizard.....	2-12
Exercise 2.....	2-16
Exercise 3.....	2-21
Exercise 4.....	2-26
Things you can do in Structure Wizard.....	2-28
Exercise 5.....	2-29
Method 2: Drafting the Geometry using Snap/Grid.....	2-32
Exercise 6.....	2-36
Viewing.....	2-40
Selecting.....	2-41
Using Selecting While Viewing 3D Geometry.....	2-44
Exercise 7.....	2-46
Method 3: Using Copy/Cut with Paste.....	2-47
Exercise 8.....	2-48
Method 4: Using Spreadsheet (Excel) Copy and Paste.....	2-49
Exercise 9.....	2-51
Method 5: Using DXF importing file function.....	2-53
Exercise 10.....	2-56
Workshop 1-A.....	2-57
Workshop 1-B.....	2-58
Notes.....	2-62
Module Review.....	2-63
Module Review Answers.....	2-64

### ***Module 3 Useful Function to Complete the Geometry***

Introduction.....	3-3
Translational Repeat.....	3-4
Exercise 11.....	3-5
Circular Repeat.....	3-6
Exercise 12.....	3-7
Mirror.....	3-8
Exercise 13.....	3-9
Rotate.....	3-10
Exercise 14.....	3-11
Move.....	3-12
Insert Node.....	3-12
Add Beam Between Mid-Points.....	3-14
Add Beam by Perpendicular Intersection.....	3-14
Exercise 15.....	3-15
Connect Beams along an Axis.....	3-17
Intersect Selected Members.....	3-17
Exercise 16.....	3-18
Cut Section.....	3-21
Renumber.....	3-23
Exercise 17.....	3-24
Delete.....	3-26
Undo/Redo.....	3-27
Zooming/Panning.....	3-27
Dimensioning.....	3-29
Pointing to Nodes, Beams, and Plates.....	3-30
Global and Local Coordinate System.....	3-32
Module Review.....	3-35
Module Review Answers.....	3-36

### ***Module 4 Properties***

Introduction.....	4-3
Property Types.....	4-3
Type 1: Prismatic.....	4-4
Viewing Cross-Section.....	4-7
Exercise 18.....	4-8
Type 2: Built-In Steel Table.....	4-9
Exercise 19.....	4-13
Type 3: Thickness.....	4-14
General Notes About Property Assigning.....	4-15
Workshop 2-A.....	4-20
Workshop 2-B.....	4-21
Module Review.....	4-23
Module Review Answers.....	4-24

### ***Module 5 Constants, Supports, and Specifications***

Introduction.....	5-3
Material Constants.....	5-3
Exercise 20.....	5-6
Geometry Constant.....	5-8
Exercise 21.....	5-10
Supports.....	5-11
How to Assign Supports.....	5-12
Editing Supports.....	5-13
Exercise 22.....	5-13
Specifications.....	5-14
Exercise 23.....	5-18
Workshop 3-A.....	5-19
Workshop 3-B.....	5-20
Module Review.....	5-21
Module Review Answers.....	5-22

### ***Module 6 Loading***

Introduction.....	6-3
How to Create Primary Load.....	6-4
Individual Loads: Introduction.....	6-6
Individual Loads: Selfweight.....	6-7
Individual Loads: Members Loads.....	6-8
Exercise 24.....	6-14
Individual Loads: Area Load.....	6-17
Individual Loads: Floor Load.....	6-18
Individual Loads: Plate Loads.....	6-20
Individual Loads: Node Load.....	6-25
Exercise 25.....	6-26
Individual Loads: Viewing & Editing.....	6-27
How to Create Manual Combinations.....	6-29
How to Create Automatic Combinations.....	6-30
Exercise 26.....	6-32
Workshop 4-A.....	6-33
Workshop 4-B.....	6-34
Module Review.....	6-37
Module Review Answers.....	6-38

### ***Module 7 Analysis***

Introduction.....	7-3
Perform Analysis Command.....	7-3
P-Delta Analysis Command.....	7-6
Non-Linear Analysis Command.....	7-9
The Execution Command.....	7-12
Workshop 5A & 5B.....	7-16
Module Review.....	7-17
Module Review Answers.....	7-18

**Module 8 Post Processing**

Introduction.....	8-3
First Step.....	8-3
Node Displacement.....	8-5
Node Reactions.....	8-10
Beam Forces.....	8-12
Beam Stresses.....	8-16
Beam Graphs.....	8-19
Plate Contour.....	8-20
Plate Results Along Line.....	8-23
Animation.....	3-26
Reports.....	8-27
Other Ways: Double-Clicking a Beam.....	8-36
Other Ways: Double-Clicking a Plate.....	8-39
Workshop 6-A & 6-B.....	8-40
Module Review.....	8-43
Module Review Answers.....	8-44

**Module 9 Concrete Design**

Introduction.....	9-3
Modes of Concrete Design.....	9-4
Step 1: Job Info.....	9-4
Step 2: Creating Envelopes.....	9-5
Step 3: Creating Members.....	9-6
Step 4: Creating Briefs.....	9-8
Step 5: Creating Groups.....	9-16
Step 6: Design Modes.....	9-17
Step 7: Reading Results: Beam Main Layout.....	9-20
Step 8: Reading Results: Beam Main Rft.....	9-21
Step 9: Reading Results: Beam Shear Layout.....	9-22
Step 10: Reading Results: Beam Shear Rft.....	9-23
Step 11: Reading Results: Beam Drawing.....	9-24
Step 12: Reading Results: Column Main Layout.....	9-25
Step 13: Reading Results: Column Shear Layout.....	9-26
Step 14: Reading Results: Column Results.....	9-27
Step 15: Reading Results: Column Drawing.....	9-28
Step 16: Reading Results: Generating Design Reports.....	9-28
Workshop 7A.....	9-32
Module Review.....	9-35
Module Review Answers.....	9-36

***Module 10 Steel Design***

Introduction.....	10-3
Step 1: Load Envelope Setup.....	10-4
Step 2: Member Setup.....	10-5
Step 3: Change the Restraints.....	10-6
Step 4: Creating Briefs.....	10-9
Step 5: Creating Design Groups.....	10-14
Steel Design Commands in STAAD Pro.....	10-15
Workshop 7-B.....	10-18
Notes.....	10-21
Notes.....	10-22
Module Review.....	10-23
Module Review Answers.....	10-24